

# From Brain to Keyboard

A System of Hand and Finger Control  
for Pianists and Students

By  
Macdonald Smith



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Oliver Ditson Company

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OLIVER DITSON COMPANY

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## AUTHOR'S PREFACE

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In presenting to the American public the work upon which the Author has been engaged for half a lifetime, he does so with the earnest hope that it will prove as useful to music-lovers in America as it has already to thousands in England and elsewhere.

On a first inspection of this book many will see only the strangeness of the new method, but when understood it will be recognized as merely a rational application of science to the necessities of the case.

When one drives a perfect motor car of recent model, one moves levers which bring into play laws of mechanics and other sciences, such as physics and chemistry, about which one may, merely as owner or driver, know nothing. The car races along well, nevertheless.

In pianoforte-playing, it has been found that by the discovery of a new principle of muscular and nervous development, and the application of such laws of physiology and of mechanics as belong legitimately to the subject, an advance on former methods of training has been made possible, perhaps as great as is that of the motor car compared with the ordinary horse vehicle.

People were nervous at first about riding in motor cars, but now everyone uses them, though they do not often understand them. It is hoped, therefore, that this method for pianists, even though strange, will be generally adopted by American students and players when its advantages, easily verified, are appreciated, and that the day of tiresome daily scale-practicing will soon become a thing of the past.

*Macdonald Smith*

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# CONTENTS

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	Page
<i>Introduction</i>	
PIANO PLAYING IN GENERAL . . . . .	1
<i>Chapter I</i>	
HAND AND ARM CONTROL . . . . .	5
Full-contraction . . . . .	7
<i>Chapter II</i>	
COMPLETE COURSE OF SIX LESSONS . . . . .	11
General Rules . . . . .	11
First Lesson . . . . .	12
Second Lesson . . . . .	16
Third Lesson . . . . .	20
Fourth Lesson . . . . .	23
Fifth Lesson . . . . .	26
Sixth Lesson . . . . .	31
General Rule for Fingering . . . . .	32
Classification of Pianists . . . . .	34
<i>Chapter III</i>	
TECHNICAL RULES EXPLAINED . . . . .	36
<i>Chapter IV</i>	
THE THUMB-UNDER MOVEMENT . . . . .	41
<i>Chapter V</i>	
SCIENCE OF PIANOFORTE PLAYING . . . . .	49
"Contagion" . . . . .	51
Conclusion . . . . .	59

# INTRODUCTION

## PIANO PLAYING IN GENERAL

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How many among your friends can you count whose performance touches you, whose playing gives you real pleasure or could soothe you when you feel wearied or worried? How many of them can accompany at sight sympathetically and reliably, a simple ballad? You smile as if I were asking an impossibility.

A. Neumegen, *Music as it is Taught*.

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Music as conceived in the brain of the composer is entirely mental; as played on a mechanical piano or organ it has nothing mental about it; and as executed by a performer on any instrument it is partly dependent on mental conditions and partly upon mechanical or rather physical ones, besides, of course, the purely mechanical condition of the instrument itself.

Take an experienced pianoforte professor of fifty or sixty years of age — if he cannot play an even scale his difficulties are purely *physical*; a strong young pupil of his who can “do anything” with her fingers fails to play as she should from difficulties which are purely *mental*. The beauties of a favorite piano composition may be thoroughly enjoyed by many by simply reading it over, the reader being then untrammelled by technical imperfections, but music in general cannot be practiced in quite such an imaginative and ethereal manner and requires for its interpretation, first and foremost, no doubt, the musical soul; but secondly the delicately regulated contractions of many muscles to produce the required sounds from whatever instrument is being played. In the case of the piano, very great attention and study has been given to that part of the mechanism which intervenes between Keyboard and String; but it is the remaining part of the chain — and this chain is no stronger than its weakest link — that has hitherto caused most trouble.

That this Technic, this link between Brain and Keyboard — in a word, this perfection of muscular control — is the weak link in the chain needs no confirmation. Every performer knows it too well, from the girl of nine who cries over her scales, to the concert player who laments that the arduous practice he knows not how to avoid is eating the soul out of his playing. We have moreover the testimony of eminent teachers. "For a pianist three things are necessary" says Von Bülow, "The first is Technic, the second is Technic, and the third is Technic." Franklin Taylor defines Technic as "Perfect control over the fingers," and as to its indispensability makes the following apt analogy: "No player whose technic is deficient can express properly his own musical feelings or the ideas of the composer, just as no speaker can speak or recite impressively and convincingly if he is forced to stumble over the pronunciation of every other word."

It is therefore clear that to any pianist a method by which the most perfect control over the fingers, hands and arms is readily obtained is of the utmost importance.

Although a pianist may possess the right number of bones and muscles, some, or probably many of the latter are in an impoverished state owing to the fact that the circulation has been defective or imperfect for years. As they are imperfect, any nervous impulse sent along the nerves to these muscles, ordering them to act, requires to be greater than is the case with perfect muscles: moreover, the latter take much longer to move than should be the case. To be a good pianist it is obvious that *every* muscle must move the instant it is wanted to do so, and if this fails to come about with even a few of the muscles brought into play in any technical passage, no further reason need be sought to account for the failure experienced in playing it, though others may be simple enough. Unless every muscle in the hand and arm is in perfect condition one or another of the many technical difficulties a pianist has to overcome will be found to be insuperable.

Another reason why people cannot play as they wish is perhaps because they have hitherto believed that the principle "Practice makes perfect" had a universal application, and that if the constant repetition of certain passages did not bring mastery

it was because they had not been practiced *often* enough, and they perhaps tried doubling their practice with the same or similar results as that complained of by the writer of the following letter received not long ago by the Author. "I began study late — hardly any teaching before seventeen. Never had regular instruction, but short courses of lessons from Ernst Pauer, Dannreuther, Emil Sauer and others. All seemed to think me talented, but professors in Germany said 'What a pity, with my talent, I had no "School." ' So in an evil moment I placed myself under a teacher of considerable *r p te* in Frankfort, practiced four hours daily, for four months, only *technic*. I obtained little of that, but quite lost my nerve; also, for the time, my touch and the freedom which artists had always admired."

Keyboard practice has hitherto been accepted as a necessary evil attendant upon piano-playing; hours of wearisome scale practicing and other technical exercises being undergone in the (often vain) attempt to keep fingers and wrist in that supple and nimble condition so essential to the execution of rapid movements. The system of training given in the following pages not only abolishes all this but does more, for by its aid the performer acquires a far more perfect touch and *technic* than he or she could ever hope to gain by years of practice under the old system.

The terrible drudgery undergone in mastering, or trying to master, technical difficulties, can be accepted as a constant daily task only by professionals or those in whom youth and ambition are specially strong. The most dogged determination fails to induce the adult pianist to stick to his Tausig and his Plaidy when he has proved the falsity of their guidance. The real way to attain mastery over difficult passages is not to go over them until one is sick and tired of them, but to get the arm and hand muscles into the most perfect state possible, a state approaching that exceptional muscular development with which "virtuosi" are endowed by nature; the rest is then no specially difficult matter.

It should be stated that in the following pages the reader is assumed to possess a certain knowledge of music and acquaintance with the piano, and therefore elementary details to be found in any music primer are not given. Neither the average pianist nor the



advanced player will necessarily be interested in all the *proofs* of the various statements made; it is generally considered sufficient if promised results are attained. There are however many teachers who prefer to understand fully what they are doing and for the benefit of these much matter which in the text would perhaps appear mere encumbrance to many, has been collected in a separate chapter. The attempt has thus been made to suit the requirements of every serious piano student and teacher.

As individual needs vary greatly, my experience has led me to divide piano students and performers into six classes. This classification is given in detail on page 34. The needs of each class in Touch and Technic are met in the course of work outlined in the following chapters. Those who have not the patience to go through the course as directed will find it well worth while to learn and perform the merely physical exercises given in Chapter II, which will enable them to play better without keyboard practice than they formerly have been able with its help. The instructions given are readily understood by any person and involve no special knowledge of physiology or mechanics.

If the reader should object that it is wrong to assume that perfection of piano playing consists in nothing but a perfect technic, the writer is quite sensible of several other things being just as essential. The great point to emphasize, however, is that just in this technic lies the hitherto insuperable barrier which no proper means has been brought forward to overcome. Other departments such as sight reading, memory, interpretation, etc., have been dealt with more or less efficiently, but when we come to the difficulties of touch and technic the long and weary road commonly travelled has been that of interminable practice, and that road, it has been clearly shown, does not lead to the desired goal save with a few favored individuals.

# CHAPTER I

## HAND AND ARM CONTROL

"In Art and Science, as well as in acting and doing, everything depends upon correctly comprehending the objects, and in treating them according to their nature."

Anon.

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A little reflection will show that the hand is by no means naturally suited for playing the piano, and therefore requires to be most carefully adapted to its new work. The short thumb, with its lateral movement, is indeed most handy in many passages; but the four fingers are of different lengths and varying strengths, the first two being strong, owing to their constant use for everyday purposes, while the thumb, the third and fourth are relatively very weak.

Add the fact that the thumb is never used for an up-and-down movement except at the keyboard, also that the tendons of three of the fingers are by nature tied together in a most provoking manner, and it is readily seen, from the pianist's point of view, that we have an irregular combination, needing a vast amount of training by the usual methods before we can be made to play an even scale or a rapid arpeggio.

Yet these are not the chief difficulties. The casual observer probably thinks that the only "tools" a pianist requires to have thoroughly trained are his fingers. There can be no greater mistake. The whole arm as far as the shoulder-blade is, for difficult music, every bit as important as the fingers.

There is no necessity for going into long anatomical descriptions but the reader should always bear in mind that all the movements of the fingers, hands and arms in playing the most difficult music are effected solely by the *sudden and regulated contraction of certain muscles*.

All the muscles employed in piano playing must be brought into and kept in as perfect a condition as the state of health of the player will permit, or their disuse, partial or entire, will make them sluggish in obeying the will which causes them to act. Each finger has

muscles to raise it and others to depress it. The chief of these are placed in the forearm, and it is the tendons from these muscles which pass through the wrist, and are inserted in the last joint of the fingers.

There are muscles which act on the whole hand at the wrist in the same way, and which produce all the so-called wrist movements so important for the piano player. The thumb has special muscles which are used for the "turning under". The fingers are moved laterally by some small muscles placed in the hand, which are used in playing any arpeggios. In short, the hand and arm are provided with ample means for performing each of the following five pairs of movements: —

(1) Of the fingers (and thumb) up and down (as in striking the notes).



(2) Of the whole hand from the wrist, up and down (as in playing a chord), or sideways as in playing a slow legato arpeggio on the white Keys.



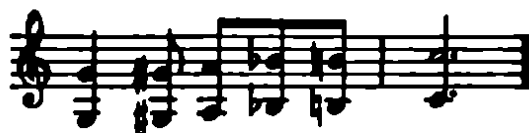
(3) Of opening and closing the palm of the hand, including spreading apart of the fingers and thumb (as in many piano passages).



(4) Of the forearm, carrying the hand to left and right along the keyboard (as in playing octaves on white keys).



(5) Of the forearm backwards and forwards (as required in a chromatic scale in octaves).



Every variety of movement used by the pianist will be seen to be only combinations of the above simple ones.

It is nothing new to recognize the fact that if one wants to be a perfect pianist one must have an unusual perfection of muscle. The favoured few possess this by virtue of natural gift, but though many methods had been tried, no satisfactory solution of the difficulty had been arrived at until the value of the special "full-contraction" principle of exercise was discovered. With its help, everything is made clear and easy, as far as Touch and Technic are concerned.

Anxious to be a good pianist, but equally loth to practice to no purpose as he saw others doing, most of the author's spare time for many years was devoted to the problem of finding out how the muscles of the favoured few who play well with but little practice differed from those of ordinary people who play but indifferently in spite of much practice. Dozens of different forms of apparatus which, though very useful in their way, were not perfect in their results, were discarded one after another, till in 1893 apparently by accident, he discovered the fact that it is only by a certain definite way of exercising the muscles that they can be brought thoroughly under control in the way a pianist needs. To this discovery the only possible name of **Full-contraction** has been given. He soon found that exercises on this principle, coupled with other special mechanical rules about trills, skips and special chords, made up a System which was absolutely complete.

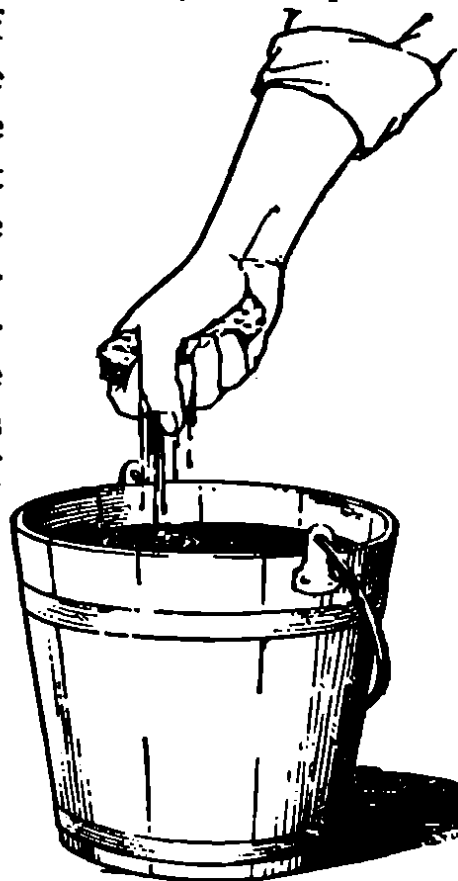
A few "**full-contractions**" of any muscle develop it quickly, not only in strength, but in quick and precise responsiveness to the mental call. Taking as a typical example the movement of a single finger, a person who can repeat a note on the piano three or four times in a second is enabled after a little proper development to sound it seven or eight times in succession in a single second, and instead of the finger being tired after two or three seconds of this rapid movement, to continue it with ease for a much longer time. And similarly when all the muscles of the arms and shoulders are thus developed, command over all the five groups of movements becomes easy.

No apparatus whatever is needed, and there is absolutely no dan-

ger of overstraining the muscles. Whenever we contract a muscle in such a way that it becomes as short as it ever can become in the body, we have what is called its **full-contraction**, and the difference between this and any other sort of heavy or light movement may be explained as follows:—one has a small sponge full of ink, and one wishes to clear that ink out, as completely and as soon as possible, with the aid of a pail of water. If one only half squeezes it each time in the water, a hundred of such half-squeezes will not make it quite clean, but if one compresses it each time as tightly as possible, it will come out clean after half-a-dozen squeezes under the water. This should show how a few full-contractions are worth more than a hundred other movements, and how the muscle gets a pure supply of fresh blood by this means, and will therefore flourish, if, of course, the blood is in good condition.

Full-contraction exercises are so different in principle and practice from the ordinary movements of the fingers that independence of finger action is actually acquired by an exercise in which all the fingers are moved together, and not separately at all.

The average amount of time which must be devoted daily to the use of full-contractions is about eight minutes when dressing in the morning, and eight minutes when undressing at night. In conjunction with their use so little in the way of technical exercises at the keyboard is required, that the latter may be virtually dispensed with. The foregoing is an estimate of the time to be devoted by the average pianist of eighteen years or over who has learned pianoforte playing in the usual way. The saving of time is in itself a great point, for it has been truly said that "probably in no art is more time fruitlessly spent than in music." It is needless to remark that the practice of technical exercises (scales, arpeggios, etc.) to a limited extent, is required by all learners for gain-



ing the indispensable familiarity with the different keys and their fingering.

It must be remembered that the System does not consist merely of the physical exercises. It is a combination of these and special technical rules which it is indispensable to observe in attempting such complicated movements as are involved in the performance of modern piano works.

Besides perfecting their technic and touch, pupils trained on this system have frequently testified to its having given them the power to accompany at sight, to play octaves lightly and easily, to save three-quarters of the time they spent in practice, to overcome nervousness in public playing, to develop a velvety and sympathetic touch, and to revolutionize their playing generally. It becomes the most valuable help to sight-reading, for when the fingers obey the will almost without thought, the whole attention may be given to the printed page. Above all, the importance to musicians in general of being able to attend exclusively to the music itself, instead of being slaves to its technical difficulties, can hardly be overrated.

The system has enabled numbers of pianists of all ages between sixteen and sixty, and even seventy years of age, to play better than they ever did before and this without keyboard practice as usually understood. Age is in fact no obstacle to success, provided the general health is good.

If it is remembered that it is entirely from the blood that the muscle derives the nourishment which not only enables its fibres to grow and develop but gives it its capacity for work, it will be understood what enormous improvement is to be expected when one uses a form of exercise like full-contraction, which leaves every fibre of the muscle full of the very best blood, i. e. blood unimpaired by the fatigue products which every other form of exercise leaves in the muscle when ceasing to do the work of which the exercise consists. As the full-contraction exercises involve no work, no fatigue products are created.

Though there are fifty-nine muscles to be trained in each arm, it does not follow that each one has to be exercised separately. One movement may give full-contraction to seven or eight muscles

at a time. That is why it has been possible so to condense the system that a few minutes' practice a day is all that is needed.

The application of the study of gymnastics to the requirements of the pianist or organist is by no means new, but little would be gained by describing the methods and apparatus hitherto invented. Some will have read the books published on the subject, or have used one or other of the devices recommended, and an interesting day might be spent at the Patent Office examining the various finger-stretchers, hand-rests, finger and wrist strengtheners and developers, and dumb keyboards invented during the last thirty years. Some advantage has certainly been gained by them, but in this instance one is reminded of bridging a mountain torrent by throwing a log across it, for if in falling it misses the opposite bank by only an inch, it is useless; so with keyboard players, if the method employed is not absolutely complete, does not meet every requirement, almost as much additional arduous labour has to be gone through at the instrument to overcome one remaining difficulty as to overcome a dozen.

Practical details of the Complete Course of Six Lessons, suited to the average pianist, are given in the following Chapter. Those content with practical results will not need to study Chapters III, IV and V, intended for those who wish to understand the present System in all its bearings.

## CHAPTER II

### THE COMPLETE COURSE OF SIX LESSONS

The following course, as it stands, is suited to any healthy pianist of either sex and of any age between sixteen and forty, who has learned the piano in the ordinary way and is able to play at least an easy Beethoven Sonata after a moderate amount of practice, and who knows some of the scales if not all. Such pianists are considered as belonging to *Class A*. They should use the First Lesson — two weeks, the Second — three weeks, the Third — three weeks, the Fourth — four weeks, and the Fifth — six weeks.

For modifications in the course to be made by more advanced or by more backward students (Classes B, C, &c), see page 34.

### GENERAL RULES

1. **Speed of the Exercises.** Each single movement must be as brisk and complete a contraction as possible, a very slight pause being made after each, so that twelve double movements occupy about twenty seconds.

2. The exercises are better performed with each hand or arm, *separately*, but, if necessary, time may be saved by doing some with both hands together.

3. Beginners, or players new to the system and anxious for progress, may go through the General Exercises *four* times a day, **not more**, for the first month or two; but *twice* a day, morning and evening, is enough for keeping up thorough development when once acquired. It will occupy but a few minutes and a little irregularity will not do much harm.

4. The arm exercises are of course best performed with as little restraint from clothing as possible.

5. Remember that the two elements of success are the *briskness of the individual muscular contractions* and the *fullness or completeness of them*.



6. As it is during the subsequent *rest* that the muscles develop, not during their action, *nothing is gained by working incessantly at these exercises*. Limit the number of repetitions of each movement to the twelve or twenty prescribed.

7. It is not advisable, except for a concert or special performance, to go through the set just *before* playing, but it is essential to use them to relieve the arms and hands *after* any long spell at the instrument.

---

## FIRST LESSON

*For Pianists of Class A.*

**Follow the directions below for FOURTEEN DAYS**

Perform twice or more daily the following Full-contraction exercises: —

### EXERCISE No. 1, for the Fingers

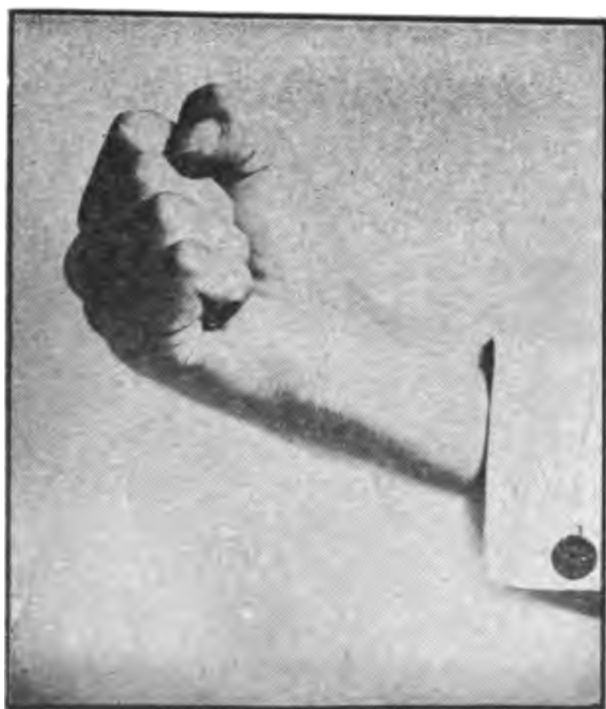


Fig. 1



Fig. 2

Figs. 1 and 2 show the two positions of the hand required for this exercise, and may be termed *Offence* and

*Defence.* Imitating them carefully, pass from one to the other as briskly as possible, doing the double movement a dozen times. It is immaterial whether the elbow be bent or straight. Observe that in the second position the back of the hand faces you, because, in passing rapidly from one to the other, the hand has to be *turned round* as well. Get the hand as far back from the wrist as possible in Fig. 2, though the fingers must be kept straight, and on no account allowed to curl; this is most important. Try to point the stiffened fingers to *b* instead of *a*.

### EXERCISE No. 2, for the Wrist



Fig. 3



Fig. 4

Bring the open hands together in front of you, as in Fig. 3, lifting the elbows nearly as high as the shoulders, and letting the two forearms and the hands form one straight line, the left hand, with the thumb turned out, being as nearly horizontal as possible. Then briskly twist the forearms and hands in contrary directions, breaking, of course, their contact during the turn, till the hands assume the position shown in Fig. 4, the right hand now being as flat as possible; then as quickly back to the first position, repeating the exercise backwards and forwards twelve times.

This movement is so unlike any used at the pianoforte that an explanation seems advisable. It is undoubtedly the most important of them all, crispness and delicacy of touch proceeding from proficiency in this more than in any other. Besides imparting full development to those muscles which govern the up-and-down and lateral movements of the wrist used in chord and arpeggio playing, it gives, in combination with the *Defence* exercise, delicacy of command over tremolo, trill, and many other complicated passages, as the student will prove by persevering with it.

### EXERCISE No. 3, for the Forearm



Fig. 5

Of these 24 double movements half must be done with the palm of the hand turned *towards* the shoulder, and half with the palm turned fully *away from it*.

This exercise consists of the fullest flexion and extension of the elbow-joint, somewhat as in the action of striking a succession of blows, only that the hand is kept open, not closed. This rapid bending and straightening is to be done in *two positions*.

1st. — With upper arm *kept pointing downwards* (Fig. 5), bend and extend 24 times.



Fig. 6

2nd.—With upper arm *kept pointing upwards* (Fig. 6), bend and extend rapidly 12 times. The position of the hand here is not important.

#### EXERCISE No. 4, Double-Finger Exercise

Hold one hand up with the palm facing you. Press the little finger against its neighbour and bend them both down till their tips, kept together, are brought near the wrist, *noting*, however, that the strong bending is to come from the *large knuckles* (joining fingers to hand) *only*. Bend and extend again twelve times quickly. The other fingers will be forced to bend themselves also, passively, but this is unimportant. Repeat the exercise similarly with the *two other pairs of adjacent fingers*, making three *pairs* to be exercised in each hand.

The above and each of the *full-contraction exercises* may, if preferred, be done for the first few days gently and sparingly, as the new use of unaccustomed movements generally causes some aching, which however, should encourage rather than deter the student, as it reveals simply how undeveloped the muscles must be to ache with such light exercise, and how much room therefore there is for improvement.

*At the Keyboard.* Play as usual, or not at all, as you like, noting however that henceforth technical keyboard exercises as generally understood will not assist your progress.

Play scales only sufficiently to become and keep quite familiar with their fingering. Avoid playing too much and avoid too difficult pieces even if you notice wonderful improvement, and avoid, specially, tiring the hand by much playing with the hand in a strained extended position, which may interfere with your general progress if done before the third lesson is taken up.

## SECOND LESSON

Follow the directions below for **THREE WEEKS**

Perform twice or more daily *in addition* to those of *Lesson One* the following full-contraction exercises.

## EXERCISE No. 5, for the Hand



Fig. 7



Fig. 8

Imitate carefully the position shown in Fig. 7, which should involve a forcible rounding of the back of the hand. Then as quickly as possible open the hand out flat, spreading fingers and thumb apart to their very fullest extent (Fig. 8). Then quickly close the hand back to first position, and repeat the movement briskly for a dozen times each way.

If this exercise causes pain in the forearm, just behind the wrist, avoid for two months playing passages involving heavy extended chords or *forte* arpeggios.

## EXERCISE No. 6, for the Upper Arm



Fig. 9



Fig. 10

This movement has as its object the fullest rotation of the upper arm. In imitating the positions (Fig. 9 and Fig. 10), it will be seen how, in changing from one to the other, the upper arm twists or rotates on itself, which is the movement required. Carry the rotation as far as possible, in either direction, and repeat the double action a dozen times. *Special Directions.*—This should be done *slowly* for the first week or two, or until the shoulder feels strong enough to stand rapid movement.

## EXERCISE No. 7, for the Shoulder

1st Part. — *Longitude Exercise.* (The hand describes meridians from the shoulder as a centre.) Start by standing very firmly and upright. Now swing the right



Fig. 11

in the last few downward movements of this exercise. Repeat similarly with the left arm.

2nd Part. — *Latitude Exercise*. Stretch the arm out straight in front of you, and then move it round horizontally, describing as it were with the hand part of a parallel of latitude. This first arc, at the level of the shoulder, we will call the *equator* (Fig. 12). Stand

arm as in walking, only as far back as it will go, and forward right up above the head. This we will call the *Greenwich longitude*. (Fig. 11). Now keep on swinging the (right) arm, *always right above the head and always vertically*, but make the plane in which it swings turn slowly to left till the arm is moving up and down brushing the chest, then let it turn again to the right, always moving up and down, past the *Greenwich longitude* position, and on, till the arm moves up and down in the plane of the back. The arm stops forcibly at the body



Fig. 12

firm and move the arm in this arc two or three times to left and right as far as it will go, without bending the elbow; then shift it a little higher, still describing the horizontal arcs with the hand, and so on gradually up until the hand is almost straight above the head (*North Pole position*). Now down again gradually in the same way, continuing the zigzag movement, past the *equator*, and down till the hand is describing small arcs at the level of the thigh (*South Pole position*). These movements are very much as if in a small but very high room of a circular shape, lined all round with bookshelves, you were pointing out the length of each shelf successively.

*Special Directions.*—These longitude and latitude exercises must not be done quickly until the shoulder joints feel *very strong*; after that, the quicker the better, as soon as the proper movements become familiar. A dozen of the up-and-down or cross movements with each arm will be found enough at first. When no longer fatiguing, about twenty double movements may be done with advantage. Whenever the arm is moving *behind the back* in these exercises it is important to brace its corresponding *shoulder blade* as thoroughly as can be towards the spine, and downwards.

### EXERCISE No. 8, for the Little Finger

Hold the right hand up in front of you, as if inspecting the palm. Keeping the arm quite still and palm facing you all the time, bend the hand quickly down to left from the wrist, until the little finger, somewhat separated from the others, is brought as low as possible, contracting strongly the muscles at the left side of the hand. Repeat twelve times, and then twelve times with the left hand.

*Position of the hand.* "The normal position of the hand in playing the piano should be with the fingers bent, the longest ones most, the little finger least, and placed in such a way that the tips



of the fingers touch four points upon the same straight line, the thumb being held straight out, the tip reaching nearly to the tip of the index finger. The movement of the fingers must proceed from that joint only which connects them with the hand." (Kalkbrenner)

*At the Keyboard.* Practice any pieces you like which are within your scope, also play a variety of *short* technical exercises, avoiding anything found tiring.

For general playing, begin (if not already doing so) to make use of the *pure wrist* action whenever feasible. Many players allow the *forearm to drop*, with the result that the fingers depress the keys by means of a *dragging* movement. The proper wrist action is the reverse of this, and involves a *firm fixation of shoulder and upper arm* to keep the *forearm steady*, and a downward movement of the whole hand from the wrist-joint as a centre.

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### THIRD LESSON

#### Follow the directions below for **THREE WEEKS**

Perform twice or more daily *in addition* to those of Lessons One and Two the following Full-contraction Exercises.

#### EXERCISE No. 9, Special Exercise for the Thumb

Hold the hand open edgewise, a few inches from the chest, all the fingers and the thumb being straightened out and kept together, so that the little finger is quite hidden, and turn the thumb slightly towards you as if casually inspecting the thumb nail. Press the thumb now firmly against the first finger (1st position).

Now, *keeping the forearm quite steady*, bring the thumb away from the hand and into the position which is commonly indicative of pointing backwards over one's shoulder, *i. e.*, bring it, and the hand with it, as far as possible in the direction of the shoulder, allowing free movement of the hand *sideways* at the wrist (2nd position).

Repeat the double movement from 1st to 2nd position and back again twelve times briskly.

*Special Directions:*—For second position, the hand moves from the wrist, but sideways, that is, as it moves in a slow Legato Arpeggio, not as in playing octaves. To explain still more clearly what is meant by “sideways,” place the extended hand flat on the table, palm downwards. If you then move it to the right and to left, keeping the forearm quite still and the palm on the table all the time, that is what is meant by “sideways.”

### \*EXERCISE No. 10, Special Exercise for the Wrist

Hold the forearm in the position used for the wrist exercise, Fig. 3-4, with this difference, that the hand is not kept in line with the forearm, but very strongly back at the wrist as in Fig. 2, the fingers here being kept passively “curled,” however, not actively straightened. Maintaining this relative position of hand and arm, twist the latter round as in the wrist exercise as far as possible in each direction. Repeat the double movement twelve times.

\*The former exercise for the wrist, No. 2, is now to be discontinued altogether and the above used instead.

### KEYBOARD EXERCISE FOR OBTAINING GOOD CONTROL OVER WRIST AND ARM MOVEMENTS

Take Wieck's *Pianoforte Studies*, and spend four or five minutes daily in playing certain numbers in two ways, viz:—

(1) Entirely from the wrist, with amplest possible movement of the whole hand but with a firm arm.

(2) From the elbow and shoulder, i. e., by moving the elbow and shoulder joints, with a stiffish wrist, quite slowly, lifting the hand up about 18 inches before each note.

The numbers to be played in the first manner are 23 and 73 of the 1st part, and 1, 3, 5, 14, and 16 of the 2nd part. No. 73 should be played with each hand separately for the present.

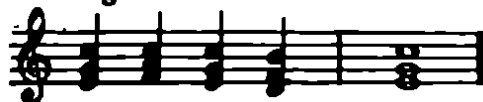
The numbers to be played in the second manner are 73 of the 1st part, and 1, 3, 5, of the 2nd part. This method, *as an exercise*, you will find very useful; it is not intended that you should at any time use these actions in playing compositions. *Do not continue after the hand feels tired.* The chords should be played *mezzo-forte*, and just slow enough to secure muscular action being clean, i. e., free from all involuntary stiffening of other muscles.

If not convenient to obtain a copy of the Wieck's Studies, the following succession of chords may be used, in several keys, not merely in the Key of C. Play these in the different manners (1) and (2) explained above.

For left hand alone



For right hand alone



Repeat each chord six times at first, later only twice.

For both hands together



*At the Keyboard.* Follow same directions as for last lesson. Practice such other of the Wieck Studies as offer a little (but not great) difficulty for you; there is no need to make a drudgery of it, and the more difficult numbers should be left alone for the present.

*How to sit at the Piano.* The pianist should sit firmly and upright at the instrument at all times, but the right "pose" can best be described as that of being stiffly *poised* in a definite normal position as follows:—

Trunk upright and firm, shoulders firm, arms bent nearly square at the elbows, forearms as nearly level as possible, hands held two inches above the keyboard. This should be the standard "position" from which in playing you are constantly varying, but to which the action of the muscles of the trunk generally should always be actively tending to make you return.

## FOURTH LESSON

**Follow the directions below for FOUR WEEKS**

Perform twice or more daily the following Full-contraction Exercises.

**EXERCISE No. 11, The "Lunge" Exercise for the Shoulder-blade.**

On the Right Side.—Stand erect, keeping the back flat, and, without leaning forward, bend the body fully over at the waist to the right, making the right arm at the same time point to the left knee. When in this position, the arm being quite straight, make a short but decided *lunge*, from the shoulder only, to bring the hand an inch or two nearer the left knee. The criterion of this exercise being done properly must be a feeling of strong contraction in a large muscle lying between the shoulder-blade and the waist (right side).

On the Left Side.—The corresponding exercise for the left side is made by means of movements with the left arm towards the right knee, the body being bent over towards the left.

Make these movements thoroughly, once with the right and once with the left arm, alternately, twelve times each.

**EXERCISE No. 12, Special Exercise for the Ring-finger**

Open the hand, palm facing you, the whole hand being somewhat hollowed by a slight curve of the fingers inwards. Now bend the ring-finger fully down upon the palm from the *second* joint, holding the other fingers back (though *quite* loosely) with the other hand. Bend the ring-finger strongly down upon the palm in this way twelve times, relaxing it between each flexion.

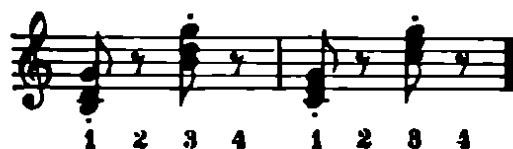
The other three fingers may be exercised in a precisely similar way, though the importance to pianists is not great. For the fingers of the *Violinist's* left hand, this is, however, very essential.

*Execution of very rapid Arpeggio Scales etc.*, for which the thumb-under movement is inadequate.

In order to attain thorough and practical command over the movements of the hand and arm required for proper playing of rapid arpeggios, scales and other passages, the following directions are of the greatest importance.

FIRST, become thoroughly acquainted with the following *Hand-skip Exercise*:—

Use two minutes' daily practice of chords in the following manner (for the first few weeks this two minutes' work may be repeated with advantage several times in the course of the day.)



The numerals under the staff indicate the time beats, which must be counted audibly by the player. It is absolutely essential in trying this exercise to count the time both audibly and smartly: "one-two-three-four." Whilst saying *one* the hand must strike the chord and return to its normal position an inch or so above the black keys. On saying *two* the whole hand must be instantly moved to the position required for playing the next chord. On saying *three* the corresponding chord is played as for *one* with a pure and quick wrist action, the word *three* corresponding as before to the quick double movement down and up. On saying *four* the arm must with the greatest possible rapidity bring the hand again to the position required for the next chord. The exercise must never be played quickly. At first the suitable tempo will be that of a slow march, and it should never be increased beyond that of a quick march.

The left hand should be practiced in a similar manner, on suitable notes,



and when both hands are proficient at the skip of one octave, a skip of two octaves should be practiced.

SECONDLY, make a careful study of the following rule for playing Very Rapid Arpeggios:—

Avoid sidelong movements of the hand from the wrist as much as possible, letting it be distinctly by a movement of the arm that the hand is carried rapidly from one position at the keyboard to another. To make this clearer, let the open hand as used for group *a* pass, without closing, very rapidly by an arm movement to the position required for group *b*.



Facility in playing very rapid arpeggios in this manner can readily be acquired.

When such passages occur at a slow or moderate tempo and legato the usual method of turning the thumb under the third or fourth finger must be used.

THIRDLY, generalise this rule for all sorts of very rapid passages, including scale-passages, avoiding in this way the difficulty of the thumb-under motion, thus: —

*Rule.* Among the possible methods of fingering any very rapid passage, that one should be selected in which the whole hand, after playing as many notes as possible in one position of the arm, is made suddenly to pass by a rapid movement of the arm to a new position in which the greatest number of notes are played before moving again. This method, used and recommended by the latest authorities, is very difficult to carry out unless great command exists over the movements of the forearm. As the *full-contraction* exercises for the arm impart this, that difficulty no longer exists. Be very careful that the effort to effect the rapid lateral movement of the arm does not stiffen the fingers, which would always cause the first note played after the shift to be too loud, or at least to have bad tone.

FOURTHLY, observe that the sudden skip of the hand involved in all the foregoing requires special attention to firmness as follows: —

*Rule.* For all sudden skips of the whole hand from one part of the keyboard to the other, the pianist must sit firm, bracing the shoulder-blades, or certainty of stopping at right notes will be lost. It will be obvious that the greater the skip, and the more rapid it

has to be, the greater must be the firmness employed. Strong and robust players will find sudden skips much easier of execution than those who are weak.

**A Word of Caution.** You will perhaps be tempted to think, or others may persuade you, that although the physical exercises of this system are sound and useful, the above and other technical directions given may either be disregarded or at least substituted for those of some other master without any loss. It is advisable therefore, to explain that this is no unimportant matter; that the technical instructions are just as indispensable as the exercises for perfect playing, and that the reason for their being so can be proved scientifically to those versed in mechanics and physiology in as thorough a manner as any other point of scientific knowledge.

When practicing or playing whole arm octaves, think of the fixing of the shoulder-blade and not so much of the hand. You will find this conducive to accuracy.

Exercise No. 13 (page 30) may be tried, and used if found easy.

**Tremolo Passages.** Tremolo passages require a moderate fixation of shoulder and elbow (to be effected consciously by all but the *very strong*, who possess it unconsciously) and a special effort to keep the forearm from *rolling*. As far as possible the movement is to be made from the fingers only. In this connection, *tremolo* is taken to include all trills, all tremolando octaves, thirds, sixths, etc., and also broken octave passages.

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## FIFTH LESSON

**Follow the directions below for SIX WEEKS.**

**Handskip Studies.** Instead of the Handskip Exercise, the pupil should in future practice the Handskip Studies given below. They should be commenced at a slow pace (about MM  $\text{♩} = 69$ ) and accelerated gradually to about MM. 120, as you become more and more expert. These studies are to be played from the wrist with as little up and down movement of the forearm as possible. They should be played for a few minutes daily. Their object is to develop the sense of control over sidelong movement of the forearm.

HANDSKIP STUDIES

J. LEESE, Mus. B., Cantab.

I

*mf (repeat pp)*

*mf (repeat pp)*

II

*mf (repeat pp)*

*mf (repeat pp)*



Apply the following rules as occasion offers:—

(1) *Quickly repeated Notes and Chords.* Up and down movements quickly repeated: (a) of the finger, require conscious tension of muscles to fix shoulder, elbow and wrist, without which crisp repetition is impossible; (b) of Hand from the wrist, demand a strong conscious fixation of shoulder and elbow, and, if *fortissimo*, of the shoulder-blade as well; (c) of the Forearm, require for *fortissimo* chords complete stiffness of wrist and of shoulder; sit very firmly, knitting the whole trunk together.

(2) *Use the Wrist Touch for single notes.* You will derive much benefit from using the wrist touch for single notes, more than you now realize. In a group of three or four notes, play the first from the wrist and the others from the fingers. This method is legitimate, most useful, and is more than equivalent to greater independence of finger. The *tone* obtained by a wrist touch is always better than that from any finger touch. Remember that a wrist accent does not necessarily involve *lifting* the hand more than half an inch.

(3) *Legato in Rapid Arpeggios.* In a rapid one-hand arpeggio without pedal a perfect (i. e., theoretically perfect) legato is a physical impossibility. But the *unavoidable break* caused (1) by the thumb-under movement in old methods, or (2) by the lateral arm movement in my methods, is in the latter case easily rendered so small as to be unnoticeable to the ear, whereas years of arpeggio practice on the old method seldom enable the player to render the break imperceptible.

The pedal is always available to bridge over an occasional break when unavoidable, and it is better to sacrifice Legato to Touch than Touch to Legato — there is no pedal at hand to make a note played by a thumb in a bad position sound like one played by another finger, or even by the thumb in a good position.

The pupil will now have acquired a good rapid control over all playing movements and should be in a position to profit from the following directions for reading music at sight.

*How to Read Music.* In reading music the most important thing to grasp is this:— You must always let the stream of pictures in the mind, of what you are doing, precede by a fraction of time the actual performance. I will try to make this clear.

When a person is reading music quickly and properly, there is first a series of pictures made in the mind, of the actions which are to be made by the fingers and arms.

These pictures are made consciously at first, but later almost unconsciously, as a result of the impression made on the eye by the printed notes. It is of the utmost importance not only that these pictures should be clear, but that they should be produced one after the other in unbroken succession.

A poor reader or learner who does not know the importance of this is constantly breaking the continuity of this series of pictures by allowing the attention to wander to the mistakes his fingers have been making. This is so fatal that no decent proficiency in reading can possibly be attained until it is overcome. To do this it is necessary to accustom yourself to reading slowly enough to make no mistakes, and also it is a valuable plan to *play things over in your mind only*, that is, by looking at the music, and imagining the playing movements clearly without really playing them.

It may encourage you to know that although these rules are original, I have learned since writing them that the celebrated master Leschetizky insisted upon a somewhat similar method with his pupils, and obliged them to make mental playing pictures.

Let us represent in the following way what occurs when one is reading new music, and let the following series of numbers

1 2 3 4 5 6 7 8 9 10

represent acts following each other at intervals of one-tenth of a second:

1 2 3 4 5 6 7 8 9 10

1 2 3 4 5 6 7 8 9 10

1 2 3 4 5 6 7 8 9 10

On the upper line are represented the succession of pictures in the mind, of the acts to be performed. On the second line, one-tenth of a second later, are represented the corresponding impressions passing by the nerve centres concerned in their interpretation. On the third line, a little later still, are the actual muscular acts at the keyboard.

Now what is absolutely essential is that the conscious attention shall be given to the *first line only*, and that the rest shall be done



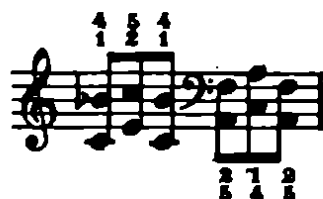
Repeat four times only at a sitting. Note that the main feature of the exercise is the gradual increase and decrease of tone, as marked. Play at a comfortable speed only—which will increase in time naturally.

The exercise can be practiced just as well away from, as at, the Keyboard; even a table is unnecessary, for it may be done equally well when seated, by pressing the fingers down on the opposite forearm, the other hand resting on the knee. Do *not* practice it to excess, even if pleased with the result, as a hard touch would result; twice or three times daily is quite sufficient, and later only once.

When quite proficient, use similar exercise with any chords involving also the fourth finger, e.g.



and involving a larger stretch, e.g.



## SIXTH LESSON

Apply the following rules to your playing.

*Tone in Loud Chords.* All chords should be played from the wrist except when they are so loud that they demand considerable effort, and therefore stiffening of the wrist and finger muscles. In this case, the only way to avoid the resulting hard tone is to use the arm and hand *like a hammer*, availing oneself of its weight. In this way, good full tone can be obtained without over stiffening the wrist or finger muscles.

Each set of muscles must be made to do its proper work, e.g., only those moving the wrist up and down are used for striking a chord and must not be used at the same time for shifting the hand

sideways. The following is the best statement of the general rule to be observed:— All parts of the hand and arm, save only the muscles definitely in use, should be kept relaxed as much as possible, *except* when "fixation," as directed, is demanded for mechanical reasons.

To avoid misunderstanding about use of full-contraction exercises, it is as well to state clearly that they do not lead to any contracted or stiffened condition of the muscles, but they do give the ability to relax perfectly where necessary, and to stiffen any one set of muscles where required, keeping the others loose. The use of the exercises leads to no strain, in fact they have proved of the greatest value in curing many cases of strained muscles.

*Independent Rhythm.* The difficulty of independent rhythm in the two hands may be mental or physical. It is physical if you are able, as a listener, to appreciate the correctness or otherwise of the passage as played by others, and the improvement in your nerves should soon enable you to play it right yourself. If you do not *appreciate* the combination mentally it is necessary to endeavour to do so. You might try humming or whistling one part while you play the other.

If you desire to keep up your best playing you should in future use all the physical exercises at least once a day. You need not fear that if you are compelled to drop them for a month, you will lose what you have gained, for by resuming the exercises everything can soon be regained.

The following directions will be found of assistance and are independent of any particular lesson, though the pupil will not be prepared for all of them until he has studied up to the Fourth Lesson inclusive.

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### GENERAL RULE FOR FINGERING

Ordinary scales and scale-passages should be fingered in the usual orthodox way.

For rapid arpeggios and sometimes scale-passages apply the rules given with the directions for the *Handskip Exercises*.

Generally speaking, the great point in fingering is to look forward

to the next few notes, and see whether you will want fingers to the right or to the left of the note you are about to play and use for it the thumb or the little finger accordingly. To do this properly involves the power of looking well ahead.

## LEGATO OCTAVES

In playing legato octaves (assuming difficulty does not arise from the mere stretch of the hand) the points to be observed are:— the hand must be kept stretched to the measure of the octave, whether on the keys or off. The movement of the hand (except when fortissimo) must be made purely from the wrist joint. When these rules are complied with, you must endeavour to remove all feeling of stiffness from the other fingers, and you will become able to play legato octaves with good tone in proportion to the rapidity with which you are able to make the skips from one to the other.

## DOUBLE NOTES

The chief difficulty is that of making the necessary handshifts smoothly, and directions given will help you to make these skips without any stiffening of the fingers. Such chords as may be considered accented should be played from the wrist. The greatest help however is to get into the habit of making clear mental pictures of the chords ahead of what you are playing (See *How to Read Music*, p. 28).

## PLAYING FROM MEMORY

In acquiring the power of playing from memory the great thing is to *practice playing in your mind away from the keyboard*. This does not mean merely seeing in your mind the printed notes, but going over the playing movements also, fingering and all. To begin with you should not try to learn in this way more than a measure at a time, and only easy music should be attempted at first.

## CLASSIFICATION OF PIANISTS

**Class A.** The healthy pianist of either sex and of any age between 16 and 40 who has learned the piano in the ordinary way and is able to play at least an easy Beethoven Sonata after a moderate amount of practice, and who knows some of the scales, if not all. Pupils of this class should use the First Lesson — two weeks, the Second — three weeks, the Third — three weeks, the Fourth — four weeks, and the Fifth — six weeks.

**Class B.** The advanced pianist, naturally gifted, who finds everything easier than is usual.

*Rule.* Take up the Lessons at shorter intervals than for Class A, using the First Lesson for two weeks, the Second — two weeks, the Third — three weeks, the Fourth — four weeks and the Fifth — four weeks.

**Class C.** Backward pianists, those who find considerable difficulty in mastering the keyboard in spite of hard practice.

*Rule.* Use the First Lesson for three weeks, the Second — four weeks, the Third — six weeks, the Fourth — six weeks, the Fifth — eight weeks.

**Class D.** Pianists in weak or delicate health (not including those who are well in every other way but have very weak muscles, which the exercises will soon strengthen and who should follow directions for Class A); especially those with poor blood (anaemic or subject to influenza). The exercises will do them good but they should be prepared to take a much longer time over the Course.

*Rule.* Use the First Lesson for three weeks, the Second — four weeks, the Third — six weeks, the Fourth — six weeks, and the Fifth — eight weeks.

**Class E.** Pianists under 16. Children should and in most cases naturally will, have some adult to assist them in carrying out the directions.

*Rule.* Use the First Lesson for two weeks, the Second — three weeks, the Third — six weeks, the Fourth — eight weeks, and the Fifth — eight weeks.

**Class F.** Pianists over 40. The exercises are perfectly efficacious

for healthy persons of any age, but the effect often takes longer in coming about than with younger persons.

*Rule.* Use the First Lesson for three weeks, the Second Lesson — four weeks, the Third Lesson — four weeks, the Fourth Lesson — four weeks, and the Fifth Lesson — six weeks.

*For Stiff Hands in any Class.* Pianists with unwieldy or very *stiff hands or fingers* due to manual work or other causes, but otherwise well and strong, should follow the lesson plan for Class F. In order to improve the stretch of the hand as soon as possible, they should repeat the *Double Finger Exercise* frequently during the day, which will be found to render supple the stiffest hands, though some months of perseverance may be necessary, after which the result often comes suddenly.



## CHAPTER III

### THE TECHNICAL RULES EXPLAINED

"Reverence what is old, but have also a warm heart for all that is new."  
Schumann.

The principle of exercise by rapid and full-contraction may seem perhaps very simple; it is in applying it to the exigencies of piano playing that many further difficulties are met with which would entirely vitiate results unless properly understood and provided against. The first is both mechanical and physiological.

*Quick repetition movements are physically impossible with slack muscles.* In the example mentioned on Page 7 of Chap. I of repeating the note with one finger, or in playing a trill, the reason of the difficulty is generally not so much that the muscle is weak, as that it and its tendons are, through neglect, loosely strung.

In the hand the tightening up of the muscle, unless it is natural, cannot be attained by any amount of keyboard practice, and it is only to be accomplished thoroughly by executing *full-contraction* of the muscle, after which the latter increases in volume broadwise all along its length and at the same time pulls itself and the tendons very taut owing to the acquisition of greater *tonicity*, as it is called. This principle applies to any of the many-shaped muscles in the body as well as those of the fingers. In the wasted and thin arm of an invalid the slackness of the muscle is very evident though they once may have been tightly enough strung.

The quick repetition movements used at the piano are:— the trill, requiring full development and tautness of the finger muscles; repeated chords, needing tautness of the wrist muscles; octave trills, for which full development of those muscles of the upper arm and shoulder which produce the lateral movement of the whole hand is necessary.

One of the important technical points which can be readily taught, after some development of muscle has been obtained by use of the exercises, is the *solidity of the shoulder considered as a foundation of the arm's movement*. Full muscular development may exist, and yet it may

he found impossible to play quickly repeated chords lightly, or even heavily, unless the arm is consciously stiffened down to the wrist. The power to do this is rarely possessed by any but those who have used this System for some weeks, hence the failure of so many pianists to give a creditable performance of any piece of music involving the difficulties referred to.

Take an ordinary penknife, but not an old or rickety one; open the longest blade, hold the point of the blade firmly between the finger and the thumb, and try by jerking the other end to start the body of the penknife vibrating. It will not. Now fix the same point of the blade really firmly by sticking it in a heavy piece of wood, or by holding it in a vice, or even by pressing a hard substance on it at the edge of a table, it will now vibrate readily if touched because the force used is not lost, but all utilized in making the knife oscillate, whereas, in the former case, the vibrations were deadened and lost in the softness of the hand. Since, for quick vibration of the hand the forearm cannot be fixed in a vice while playing, the nearest approach to this condition must be made, and the *upper arm* must be held by an effort as firmly fixed to the shoulder as possible. When all the muscles are developed, this fixing of the arm at the shoulder and consequent facility in playing repeated chords is quite easy of acquirement, in fact it is done unconsciously by the best players.

After a short while no trouble is found in making the arm move from a firm foundation, as it were, nor in being able to fix the arm by one set of muscles, while another set performs the actual movements necessary to carry the hand where required.

So much for simple vibration, but the importance of this foundation-making would be slight were the above the only use for it. A firm foundation is as necessary, however, for the expression of the most delicate passages as for quickly repeated chords. The arm and shoulder form an *engine*, self-contained, and comparable for the purpose to a steam-hammer, except that it is extremely light in relation to the force it exerts. The precision attainable with a steam-hammer, rendering it capable of gently cracking nuts, etc., is well known, but see the absolutely firm foundation it requires! What would happen were the steam-hammer fixed at the end of a



observed that it is only with weak or little used muscles that this independence is so hard to acquire, or to put it more correctly, that the *dependence is so hard to overcome*. A conclusive experiment, to be made by anyone, will if necessary prove this to be as stated. Try the well known gymnastic puzzle that boys amuse themselves with, by rubbing one hand up and down the chest, and patting with the other—you cannot do it! Spend one minute in giving attention to the matter and it is mastered, for the muscles employed are fairly strong and often used. Now try to lightly tap alternately with the first and second fingers of the left hand quickly, as in playing a trill; probably it cannot be done except slowly, and perseverance for ten minutes will only succeed in tiring the muscles and getting no greater “independence.” It is because now weak and undeveloped muscles are being used. If this is not convincing compare the greatest rapidity with which a non-pianist can perform this trill movement with the first and second fingers of the left hand and with the same fingers of the right. Those of the right will be found much more rapid in their alternate action, *in spite of the fact that they are constantly used together in writing*, which according to the prevalent notions of independence should make it much more difficult for them to move independently of each other. But they are better developed than the fingers of the left hand, hence their superiority in the exercise given. Critics have said; “Well, but a large amount of daily practice at the pianoforte must still be necessary, even if only for ‘judging distances’ and thus acquiring locality.” Until one has had the pleasure of playing with a perfect set of muscles no idea can be had of the instantaneous way in which they will obey the will-power; the experience of many is that “locality” when once learned is little forgotten unless the piano should be quite neglected for many months. A quick sense of locality means much more than the mental judging of the distance from one position of the hand to another position. It means the power to stop the hand instantly, carried by the movement of the forearm, at *precisely* the spot that eye or habit indicates, and this without stiffening of fingers. In no other part of piano-playing is full development of such paramount importance as here. The restraining action of a perfect set of trained muscles is instantaneous

whenever the pianist wills; whereas if they are not under control the impetus given to the hand to reach a certain note carries it beyond, before the restraining action has had time to take effect. This accounts for the separate long practice each piece of music requires under usual systems, and for the readiness with which facility in particular passages is lost unless they are very constantly repeated.

*Touch.* The idea which the word "touch" usually serves to convey is a very confused one, but the truth is the majority of pianists *do* possess *all* the mental requisities for good touch, and the lack of power of showing it at the keyboard merely from want of muscular and nervous *development*. Give them this development and the good touch comes out just as unconsciously as a photograph is printed by the action of light on sensitized paper. Perhaps the worst defect of touch is "thumping" or "banging." Even this disappears as the muscles are perfected, without the least conscious attention of the player.

## CHAPTER IV

### THE THUMB-UNDER MOVEMENT

Unexpected as the assertion may be, it is nevertheless true that the highest art of every kind is based upon Science; that without Science there can be neither perfect production, nor full appreciation.

Herbert Spencer

The reason for allotting a separate chapter to a single point of pianoforte technic is that although the rest of the book can be used by pianists of every degree of proficiency, a confused technic and disappointment will sometimes result when *persons of decidedly weak physique* attempt to carry out the directions given on Page 24, Chap. II, regarding use of hand-skips for rapid arpeggios or arpeggio passages. It is not the first occasion on which different rules on technic have been recommended according as the pianist is possessed or not of the necessary physical qualities for a virtuoso; thus in Riemann's Dictionary of Music (article *Fingering*) we read "The Liszt-Tausig-Bülow method takes no note whatever of the unevenness of the keyboard (upper and lower keys) and removes all restrictions to the employment of the short fingers. Such considerations are however only of service to the virtuoso; a player with less developed technic will derive comfort from respecting the black keys and not putting the thumb or little finger on them."

As a consequence of the control of the arms and fingers which *any pianist* may acquire from using the physical exercises given in this book, he need have no fear as to the *free use of the thumb on the black keys*, but the substitution of the lateral arm movement for the thumb-under movement is a different matter and the instructions now to be given had better be disregarded by the pianist who has not sufficient vitality to develop a good arm and quick nervous command — he or she must continue to adhere to the old school of playing arpeggios etc. using the time honoured thumb-under movement exclusively. The perfecting of this movement has been the *bête-noir* of learners for generations and the reasons for this must now be fully dealt with, in some detail.

The thumb is moved by a number of muscles of which the strongest is almost invariably the "ball" muscle which by its contraction bends the thumb across the palm of the hand. This is the muscle which is used *to bring the thumb under the other fingers*, but when the thumb is required to *strike a note* this muscle cannot do it, the long muscle of the thumb being required. Now these long muscles are always comparatively weak and in accordance with the principle of "contagion" of the weak muscle (see Page 51, Chap. V.) their contraction requires a strong nervous impulse, which under ordinary circumstances spreads to the ball muscle and renders it very difficult to use a *pure up and down* movement of the thumb especially if wanted for a loud note. It may be contended that full-contraction exercises can strengthen these muscles as well as any others and render their independent use easy; this is so, of course, and improvement of control over the action of the thumb is very marked, but it is certain that even with perfectly developed muscles (either natural or consequent upon full-contraction exercises) the thumb-under movement is a very unsatisfactory one, and should be discarded except when absolutely unavoidable. The prime objections to this movement are that when the thumb is required to strike a note under, say the little finger (i.e. beyond the fourth finger) as in



it must either be placed in a position in which the muscles cannot possibly act upon the finger bones to produce a proper tone, or else the hand must be turned sideways to get the thumb straighter. Either method is fatal to the proper rendering of very rapid scales or arpeggios except when years of practice have been devoted to this alone by a player exceptionally gifted in this matter of muscle development.

The keyboard had been in use a long time before it was thought at all possible to use the thumb for playing under the other fingers, and even when the method was introduced the keyboard required a very different touch from that of those now in use, and what was useful *then* is no longer so *now*. Since that time the weight of the pianoforte touch has increased several fold, composers for the in-

strument have written passages to be played at a rate more rapid than was formerly thought of, and the thumb-under movement has been successively forced as it were to greater and greater efforts until it has become incapable of sustaining the strain put upon it. It is no argument against this statement to point to certain few concert pianists who can play rapid and forte passages using the thumb-under movement all along. These favoured few are gifted with natural powers above those of the average man or woman, and it is of little service to try to disprove rules by quoting obvious exceptions. Both the objections to the use of the thumb-under movement can be remedied by substituting for it a rapid lateral movement of the arm, by which the hand is carried swiftly from one position to another, the thumb retaining its normal position throughout, and the hand remaining square to the keyboard all the time. Thus in playing a *very rapid* scale of C the whole hand shifts



with great rapidity after playing the E, from one natural position to the next. At this point the reader, if a scale practicer or teacher, will perhaps smile as he imagines the effect on the "legato" of the scale caused by the jump between the E and the F. He will say scales must be played legato and that legato cannot possibly be secured without passing the thumb under—therefore the thumb-under movement is indispensable. That this argument is fallacious will now be shown. It often happens in arguments, that truth is obscured from lack of accurate definition of terms, and so it is in this instance. The term *Legato* requires definition, for it is certain that an erroneous conception of its real meaning has led to its having become a sort of fetish requiring constant conciliation by the sacrifice of otherwise valuable precepts. The current conception of legato between two consecutive notes is that it consists in sounding the second at the precise instant the first is silenced. That this is not the *whole* truth can be proved by observing (1) that the musical sense of legato is satisfied in many cases when this method is not adhered to; (2) that a scale may be played in the manner described *without* sounding markedly legato.



Two extracts from Franklin Taylor's excellent book *Technique and Expression in Pianoforte Playing*, will explain this point and make it quite clear. "Another attribute of good cantabile playing" he says "equally important with quality of tone, is the production of legato. It is one of the chief weaknesses of the pianoforte as a musical instrument, that owing to its mechanical construction a perfect legato is an impossibility. The singer can vocalize a succession of sounds on one vowel, without the slightest break in the continuity of sound, but the pianist has to deal with separate strings and separate hammers and therefore each sound sings as it were a separate syllable, with a more or less hard consonant at the beginning of it! To minimize the evil and so to approach as closely as possible to a perfect legato, it is important to observe that a succession of notes of equal strength, however perfect the mechanical connection may be, will never sound smooth. The recurring percussion, particularly if the notes are of equal length, seems to attract the ear, and to destroy all sense of continuity. But if the same notes are played with graduation of strength, either crescendo or diminuendo, the effect of legato is at once felt and the disturbing percussion is unnoticed. Everything then depends on variety and graduation of tone, and it is an excellent plan, in studying an ordinary legato melody, to determine that no two consecutive notes shall be precisely the same strength. The amount of variety must of course depend on the character of the phrase, but very slight differences are sufficient for that purpose, and if an actual crescendo or diminuendo should appear unsuitable, it is always possible to increase towards the middle and diminish towards the end of the phrase or vice-versa, according to the circumstances."

When a slur is applied to two notes which are separated by so large an interval that actual connection is impossible, the effect of connection may be perfectly suggested by slightly exaggerating the amount of difference in the strength of the notes, playing the first with considerable pressure and the second with extreme lightness. If the right proportion is arrived at, the ear may be completely deceived and led to believe that the notes are actually connected mechanically; that is, in fact, an excellent instance of the

value of variety of tone as a help to legato, already referred to on page 12. (Taylor's *Technique* etc. page 41.)

If therefore a musical legato can be satisfactorily maintained without necessarily connecting the notes in the manner usually held indispensable, it can hardly be disputed that in numerous instances, when other technical points are at stake, the mechanical legato (connection of tones) may be *sacrificed with advantage*. Take for instance the following measure from the last movement of Beethoven's *Sonata Appassionata*: Instead of any of the usual methods



of fingering adopted by various editors for rendering this measure *legato*, von Bülow fingers it as shown and makes the following note (Cotta edition). He says: "This, at first sight extraordinary fingering, which however I have in many years practice found to have proved unexcelled, I owe to my esteemed friend, the music teacher Franz Kroll, of Berlin, who has made himself very meritorious in the instruction of artists and the public, through his editions of the classics. It answers so entirely the musical phrasing, that its consistent carrying out would admit of improvising the whole movement transposed into any key at pleasure. Without absolutely tabooing the usual movement of the thumb on the 'C' in the second quarter-note we must confess that the passing over of the third finger (by a leap as it were) renders the acquired accent less acute, or mangles the entire phrase. Of this only the practical player, not the reader, can be convinced."

This method is *undoubtedly the most satisfactory* for anyone who has sufficiently rapid control over the lateral arm movement to effect the quick change of hand-position necessary. In the same Sonata, von Bülow makes another application of the quick lateral movement in a passage of a somewhat different description.

When a violoncello player has a legato passage to play in which two consecutive notes are found on the same string eight inches apart, the whole hand is often made to slide through the distance of eight inches with such rapidity that although, theoretically, all the notes in the interval have been sounded, no break between the

end of the first and the commencement of the second note is noticed. The reader has probably guessed the conclusion to be drawn for the pianist, *viz*, that if the 'cellist can shift his whole hand eight inches without a perceptible sound occurring in the time taken to do it, why should not a pianist be able to play consecutively two notes an octave apart, with the same finger and without a noticeable break? The reason, a purely physiological one, is not very apparent and there are probably few pianists trained on old lines who will agree with Franklin Taylor when he says that this would be "perfectly feasible given sufficient practice." To quote the whole passage: "The main object of fingering is the connection of tones. Were it otherwise it would be quite possible to play all passages of single notes with a single finger, and the extraordinary expertness and facility of players on the dulcimer proves that such a mode of execution would be perfectly feasible given sufficient practice."

Has anyone ever given "sufficient practice" to the experiment? Probably not, and as therefore a definite answer is not forthcoming I venture to say that without adequate training on full-contraction principles not one in a hundred would acquire the ability to play a scale respectably in this manner because the striking finger would be constantly *stiffened* by the spreading of the nervous impulse employed to shift the arm, and the resulting tone would be harsh and bad from such a stiffening (See Chap. V. p. 51.) A similar difficulty does *not* occur however in the instances given of the 'cello and the dulcimer because *in neither case would the stiffening of the finger injure the effect*. The conclusion to be drawn therefore is that the method of arm shifting will be a legitimate and most desirable innovation *if* the accompanying finger-stiffening can be eliminated. Now all who, with good nerve and fair health, have given good development to every muscle of the hand and arm find no difficulty in controlling any set of muscles, even for very rapid movements independently of all the others. With them it becomes quite feasible, with hardly any "practice" at all, to play successive notes with the same finger, at intervals of a third, a fourth, or greater intervals, which shall sound legato.

Summing up, therefore, the following general rules are the outcome of the foregoing reasoning: —

The practice of striking a note with the thumb passed under the other fingers should be avoided *whenever possible*.

Among the several possible methods of fingering a difficult passage, that one should be selected in which the whole hand, after playing as many notes as possible in one position of the arm, is made suddenly to pass by a rapid movement of the arm to a new position in which the greatest number of notes are played before moving afresh. This method, used and recommended by the latest authorities, is very difficult to carry out unless great command exists over the movements of the forearm. As the full-contraction exercises readily impart this, that difficulty no longer exists. The pianist must be very careful that the effort made to effect the rapid lateral movement of the arm does not *stiffen the finger*, which would always cause the first note played after the move to be too loud or at least to have bad tone.

In all cases where legato passages are to be played *rapidly* and in many other *slow* passages involving cramped or over-extended positions of the thumb or fingers, the customary fingering should be altered and quick shifts of the whole hand introduced at intervals to preserve the most natural position possible of the fingers and thumb. If the break in the mechanical legato cannot easily be rendered imperceptible by the mere rapidity of the arm movement, the difficulty is diminished by making the shift just *before an accented note* (where the slight break in the legato is of less importance), or else the legato effect must be produced by the other means available, viz: by increased or diminished *tone*.

The tendency among eminent teachers of recent years has certainly been to accentuate the importance of the quick horizontal movement of the hand along the keyboard, though it is also obvious that, owing to the difficulty found by the average person in its execution, such accentuation has often been implicit rather than explicit, and timidly suggested rather than inculcated.

The writer has no hesitation in saying, after practical experience with a sufficient number of cases, that the quick lateral arm movement supplies the only satisfactory means for the execution of *very rapid* arpeggios, though it is advisable to repeat again that very

weak persons will not be able to carry the principles laid down in this chapter into execution.

This subject would not be complete if it were not pointed out that there is not nearly so great an objection to passing the fingers over the thumb as there is to passing the thumb under the fingers. Descending arpeggios with the right (ascending with the left) are, as is well known, much easier to play satisfactorily than ascending ones with the right (descending with the left). In the former case the thumb *when it strikes* is in a good position and the action of the fingers is not much altered by the fact that the thumb is under them. For rapid descending arpeggios (right hand) it is however just as advisable to use rapid handshifts because it is difficult to move the thumb rapidly enough to its position, though it may have sounded its note well enough. It is evident also that even were other things equal, it would be much easier to move the thumb rapidly from say C to F by an arm movement, because the length of the forearm, being at least four times the length of the thumb, a muscular contraction acting on the long lever will move the thumb four times as fast in one case as in the other. Make two dots on paper two inches apart, and move the tip of the thumb rapidly from one to the other and back again, first by a movement of the thumb proper keeping forearm still, secondly by a movement of the forearm, keeping the thumb muscles inactive. The great increase of rapidity attainable by the second method is at once obvious.

The importance of making hand positions is not fully appreciated until the pianist has practically applied it when playing difficult music at sight. Only then can he estimate the value of the advantage to be derived from training the hand to play groups of notes belonging to the same harmony, whether in chords or arpeggios, *as the eye takes them in*. No sight-reader can become proficient until he has acquired the art of reading chords and arpeggios at a glance and when it is pointed out that the principles laid down in this chapter are such as to enable the pianist to *play* chords and arpeggios also "at a glance" so to speak, surely no more need be said.

## CHAPTER V

### THE SCIENCE OF PIANOFORTE PLAYING

"The power of vanquishing the greatest difficulties depends entirely upon each progressive step from the commencement being made perfectly secure, and unless this has been done, retrogression and final failure must be the result. In all things let 'thorough' be the watchword, and let it be remembered that 'he does much who does a little well.' "

Franklin Taylor.

The principle of rapid and full-contraction is based upon a few plain and well proven facts found in most physiological text-books. They are as follows: —

First; the nervous impulse which, by stimulating the muscle, causes it to contract, produces at the same time a dilation of the small arteries leading to it, and in this way provides it with a much larger supply of blood.

Secondly; A full-contraction (such as occurs when a muscle is contracted until for the moment it is quite hard) causes compression of all the small blood-vessels in the muscle, and as any pressure upon veins causes the blood to flow onwards towards the heart; that blood in the muscle from which the "goodness" so to speak, has been extracted, goes on its way towards the lungs, its place being taken by fresh blood from the arteries.

During the rest that follows exercise, the muscle develops by feeding upon the blood thus left in it. It is entirely from the *blood* that the muscle derives the nourishment which not only enables its fibres to grow and develop, but gives it capacity for work. Even a large muscle will have little *endurance* if there is not an abundant flow of blood through it. The stronger the nervous impulse, the greater the increased supply of blood, and it is on this account that the exercises should be performed *briskly*, i. e. with a strong nervous impulse. The consequence of the application of these two simple principles is that muscles can quickly receive full development of a vastly different kind from that produced either with heavy *work*, as with most apparatus, or at the pianoforte, where excessive repetition of partial contractions may lead to weakness and even de-

rangement (pianist's cramp), as happens more frequently than is generally supposed.

The arm and hands contain:—

(1) Bones (2) Ligaments (3) Muscles (4) Nerves (5) Other tissues, besides the blood from which all the others derive their nourishment.

The bones form the framework of the machine with which we play, but as there is seldom anything wrong with them, I need not enter into detail, but with respect to the ligaments which hold the joints together, the case is different. However good the muscles may be, they cannot possibly move the bones freely as is desired unless the latter are flexibly attached to each other, in other words unless the ligaments are elastic. In stiff wrists and stiff fingers the ligaments are much less elastic than in supple ones. A common fallacy is that of supposing that if the fingers and wrists are supple all is right, but surely it is self-evident that however flexible a joint may be, you cannot move it quickly and accurately unless the muscles are in first-rate order; indeed this is the chief consideration. One of the most striking results of the full-contraction exercise is that these ligaments, even if very stiff at first, become as supple as rubber in all persons enjoying a fair state of general health.

The muscles form undoubtedly the most important part of the arm and hand from the pianist's point of view and their function has been dealt with elsewhere in this book. For certain special cases it may be desirable to know which of the exercises gives full contraction to some particular muscle. If this is necessary the reader should apply to the author.

The nerves are, so to speak, the telegraph lines along which are sent the orders issued by the brain for the muscles to move as they are wanted to do. It would not be appropriate here to go into all the interesting facts connected with the laws governing the nutrition of the nerves and the more important nerve centres from which they spring, but, without going into technical explanations, the reader will easily understand that such an improved circulation as full-contraction brings about must have its effect upon the nerves, which are of course nourished by the same blood as the muscles.

As a consequence one has only to perfect the muscles by the use of full-contraction exercises to discover that at the same time, and without any special attention to the matter, not only are the ligaments made supple as mentioned, but the nerves are perfected in a wonderful way. Hence the remarkable improvement in the nerves which is always brought about. Independence of control over each muscle or group of muscles separately is what all pianists are aiming at, often in vain, by keyboard practice, but with the exercises given this result comes about of itself. The power, for instance, to play with one hand a succession of chords, sounding out any one note that belongs to the melody one wants to emphasize, becomes a perfectly easy matter, whereas it is almost impossible to find a pianist trained in the ordinary way who is able to do this except slowly and awkwardly, and therefore unmusically.

*The Contagion of the Weak Muscle* is a gross deterrent to muscular independence and control. When a *strong* muscle is used for work which it does *easily* the nervous impulse employed for its contraction is small, and therefore does not tend, by spreading to neighboring nerve centres, to cause contraction of muscles other than those intended to be used.

When, however, a *weak* muscle is used for work which it is incapable of performing easily, or when a strong muscle is called upon for an effort which is excessive, the nervous impulse employed for its contraction is very great, and readily spreads to other centres, causing unintentional contractions of the corresponding muscles.

Practical instances of this principle abound, but the most striking one I know is that afforded by a stalwart man in the act of buttoning a refractory collar to a stud at the back of his neck. The amount of actual force required is perfectly insignificant, but it so happens that in this particular position the only muscles available are some which he hardly ever uses at all, and they are wretchedly weak. Half a minute's work exhausts them, and if, as usually happens, the man is determined not to be beaten by such a small thing, he will go on forcing the contraction of the weak muscles by stronger and stronger nervous impulses until he is twisting every limb in his body and contorting every muscle of his face. Even bad language has been known sometimes to result.



Obviously, for such work as piano playing, necessitating independent use of a very large number of different muscles, from the fingers to the shoulder-blade, such stiffening or unintentional muscular contraction is fatal, and it is almost equally plain that it will be best avoided by taking care that *no one muscle* be left in a weak state so as to disturb, when used, the action of others. Broken octaves or sixths, when played rapidly, are difficult to 90 per cent. of players, simply because the muscles which twist the forearm (the same as are used in winding a clock, so fatiguing an operation generally) are extremely weak, and their contraction induces involuntary stiffening and therefore paralyzation of the fingers. The "devitalization" principle of some teachers, the *main désossée* of others, the limpness and suppleness of arm recommended by nearly all, are only so many forms of expressing the undesirability of this baneful stiffening, the real cause of which and its remedy have just been explained.

The perfect natural pianist, with every muscle strong and under control, can play equally well on a piano with a light or heavy touch — the average player finds the lightest touch much more suitable, just because the small exertion demanded of his weaker muscles is not sufficient to produce stiffening of the strong ones. The foregoing considerations have important bearings upon practical legato-playing, and I am sanguine enough to hope that the application of them will in time render obsolete the use of the thumb-under movement, that *bête noir* of all learners in rapid passages.

The expressions "touch" and "technic" are, as commonly used, very indefinite, and possibly in the many controversies on the subject no two of the disputants has attached exactly the same meaning to either of the words. The definition of Technic in Groves' Dictionary, as "a French term which has been adopted in England and which expresses the mechanical part of playing" will however serve all ordinary purposes, and Touch may be broadly described as the "way of striking the keys." It will not be necessary for the purpose of this book to seek more precise definitions. The great importance of technic for the performer is well expressed by Franklin Taylor (*Technique and Expression in Pianoforte Playing*) and will bear quoting again. "If it may be said that music is a language, which seems reasonable, since it is addressed to the sense of hearing

and follows its own rules of grammar, then technic is the utterance of that language, and no player whose technic is deficient can express properly his own musical feeling or the ideas of the composer, just as no speaker can speak or recite impressively and convincingly if he is forced to stumble over the pronunciation of every other word."

If one asks a pianist why he holds his hands as he does in playing he will perhaps reply he was so taught by his master, who being a favourite pupil of Liszt (or of some other great man) ought to know. Now although it by no means follows that even a Liszt or a Rubinstein strikes the keys or holds his hands in a way advisable for the average performer to imitate, there are eminent teachers whose long experience with numberless pupils is embodied in the rules they have carefully laid down and which command respect. Thus Emmanuel Bach says: — "We must play with the fingers bent, and the sinews free from all stiffness" . . . . . "He who plays with the fingers stretched out and the sinews stiff incurs, beside the natural consequent awkwardness, a particular evil, inasmuch as he removes the four longer fingers too far from the thumb (which should always be as near them as possible) and takes from the principal finger all possibility of doing its duty" . . . . . "Some persons play stickily, as if they had glue between the fingers. Their touch may be called too long, for they let the notes last beyond their time. Others play too shortly, as if the keys were red hot. That is also bad, the medium is the best . . . . . All sorts of touch are good when in the right place."

Hummel says: — "Extending the fingers flat on the keys and, as it were, boring into them by letting the hands hang downwards, are altogether faulty positions, and give rise to a lame and heavy manner of playing."

Kalkbrenner says: — "The pianist must endeavour to make his hands so independent of each other that he may be able to play the loudest and most impassioned passages in the one, while the other plays with the greatest softness and tranquillity. Sometimes even it is necessary to employ two contrary expressions in the same hand."

"If we hold our fingers stretched outwards, so as to be almost straight, or if we play with our nails, we shall draw but little tone

from the instrument, both these ways are equally bad. We must strike the keys with the fleshy part of the tips of the fingers, the hand must be held in the most natural position. . . . . The arms must be kept perfectly motionless while the fingers are in action; the movements of the hand must proceed solely from the wrist, and those of the fingers from that joint only which connects them with the hand; these are the most essential points in the mechanism of playing."

Moscheles says:—"The player must possess such control over his fingers as enables him, by the weight and pressure of their extremities to produce every shade and graduation of tone, from the most delicate to the most powerful."

Thalberg says:—"To obtain great execution, combined with fulness and variety of tone, all stiffness must be avoided; suppleness of the wrist and elasticity and pliancy of the fingers are indispensable."

Czerny says:—"In scale passages the five fingers must be properly bent, and kept so far apart from one another that each finger, when not playing, may be exactly over the middle of one of the five contiguous keys." "When one finger strikes, the others must not move, and each finger after being used must return to its previous situation." "The percussion of the keys is affected by means of the fleshy tips of the four long fingers and with the extreme side of the thumb, which for this purpose must be somewhat turned inwardly." "The white keys must be struck at about half an inch from their end nearest the player." "Each finger must be lifted exactly at the same moment in which the near finger strikes its key."

Franklin Taylor says:—"To produce the most musical and singing quality it is necessary that the finger, however firm the pressure, should be in an elastic condition, and it is therefore important that every point of the finger and hand, and even the wrist should be kept loose, and should yield slightly with each pressure of the finger tip." "Unbroken chords of a very light character and rapid repetition or succession require the same technique as wrist-octaves, but powerful chords or octaves necessitate some action of the forearm, moving from the elbow to give them force. Very rarely however, and only when a metallic, and even hard tone is required,

should the arm move from the elbow only; in most cases, the movement must consist of a combined action of both elbow and wrist, that the blow may be elastic; and not stiff."

It is very easy to assent to all this really important advice but to carry it into practice is *quite another matter* and as every teacher knows *requires great perfection of muscle and nerve such as great players are naturally gifted with.* All attempts to *train* average fingers by mere insistence upon such rules, or indeed upon any lines other than physiological have been as lacking in success as would be the attempt to construct a bridge by a builder who should ignore the laws of mechanics and the strength of materials.

A child's fingers are weak, so weak that he will use every subterfuge in order to employ any other power than that of his fingers in striking a note. The little finger is made to strike by turning the hand half over, and using the weight of the arm; the ring finger (next to it) invariably brings down one or both of its neighbours with it, and the worst of all is the thumb which the child cannot possibly wield in anything like a proper fashion. How indeed can he be expected to begin playing "without effort" when his fingers are so weak that it is only by stiffening them violently that he can sound a note at all with the weaker ones? Or how can he be expected to play a note firmly with the thumb, without using the weight of the arm for a decided "dig" when he has never before used his thumb in the manner required to play a note, but has only used it to grasp things, always opposing the face of it in so doing? Now he has to present the side of the thumb to the note, and keep the joints rigid while he moves it up and down. In every movement he has made with it, it has been the "ball" muscle he has used, so that directly he tries to move the thumb, this muscle is more or less brought into play, and the resulting movement is an oblique one, a combination of the action of the strong "ball" muscle which ought only to be used when the thumb has to be brought under the other fingers, and of those weak muscles which he hardly knows he possesses, but which, when somewhat developed, would perform the required up-and-down movement with ease. The older pupil has never used his wrist muscles independently of his finger muscles for moving his hand; they are very weak from disuse and therefore in attempting

a free "wrist" action, he stiffens his fingers, with the result that they cannot move freely and independently of the whole hand. He also finds it almost impracticable to use the muscles of the arm without at the same time stiffening the wrist and fingers.

The advice of eminent teachers given above is therefore excellent and sufficient for the piano student with great natural perfection of physique such as some of the authorities mentioned possessed themselves. The great difficulty for the majority of pianists does not lie however in carrying out the instructions if muscle and nerve are perfect but in acquiring this perfection *when it does not exist*. Speaking generally a certain movement to be done perfectly and strongly necessitates the use of a certain and definite group of muscles and no others. When, however, some or many of these, the best muscles for the purpose, are weak, there is a natural provision, most providential for everything but piano-playing, in virtue of which other stronger muscles take the work instead and the movement is done, but instead of being done *gracefully* is done *awkwardly*. Notice the unavoidably awkward way in which a weak girl will cut a slice of bread if the knife is blunt, or will lift a somewhat heavy dish or vessel. Now pianoforte playing requires such ever-varying use of so many arm and finger muscles that *this substitution cannot be tolerated*. Every muscle must be perfect, or a perfect performance is impossible. The way the difficulty should be looked at is this:  $M_1$ ,  $M_2$ ,  $M_3$ , etc. are strong muscles,  $m_1$ ,  $m_2$ ,  $m_3$ , etc. are weak ones. When  $M_1$  and  $M_2$ , for instance are used, they do their work as they should, without affecting other muscles, but when  $m_1$  and  $m_2$  are contracted for an effort too great for them to perform easily, the stronger muscles  $M_1$  and  $M_2$  are involuntarily brought into play and the movement is *improperly done*, besides which,  $M_1$  and  $M_2$  may perhaps be required *at the same time* for a different movement, which is therefore spoiled. Chord playing by use of a combination of the muscles of the fingers and the forearm instead of by means of those which move the whole hand from the wrist is an instance of this, and hence the difficulty usually found in sounding out any *one* note in a chord. Let there be full development however and the acquisition of independent command

over wrist and fingers is a question of hours only, or often only of minutes.

All popular injunctions about keeping the hand and arm *supple* are attempts (quite unsuccessful however with any but well-developed pupils) to cope with the secondary stiffening of strong muscles when weak ones are brought into play. When these weak muscles are developed and made capable of doing the work required of them, the word suppleness need never be mentioned to a pupil.

At this point a question very frequently asked is likely to arise in the reader's mind, viz: — "Are we expected then to believe that the pianist simply needs perfection of nerve and muscle?" The reply to this question cannot be a simple "yes" or "no," but will be made clear by the following considerations.

On old methods Technical exercises have been supposed to impart (given hard work):

1. Muscle training and nervous independence.
2. Automatic familiarity with scales and arpeggios.
3. A knowledge of the principles of fingering.
4. Command over various touches.
5. Locality.

By the new method drudgery is done away with altogether but definite practice is required for several of these 5 items, each of which will now be considered separately.

1. *Muscle training and nervous independence.* Use of the free gymnastic exercises (Chapter II) is all sufficient for this. Development of muscle and perfect independence of control comes as a result of these exercises alone, *whether attention is especially concentrated on them or not.*

2. *Automatic familiarity with scales and arpeggios.* For this purpose attentive practice is indispensable until the successions of notes are learned and associated with the proper fingering. The muscles should be thoroughly trained *first*, then one scale learned thoroughly at a time by slow repetition and with concentrated attention. This is not by any means a long or tedious process and when once properly fixed in the mind, the memory of these

successions of notes in scales and arpeggios is not more evanescent than the power, *e.g.*, of reading in a foreign language. If one can read French or German, one does not require to do so every day for an hour to keep it up. So, those who are familiar with all the scales and arpeggios and have acquired perfection of muscles play them just as well after a month's interval as after a day's. The *object* of the ceaseless practice of technical exercises to which the student has been enslaved is not to preserve this memory, but to preserve the condition of the muscles, an end for which it has proved most inadequate and often useless.

3. *A knowledge of the principles of fingering.* It is very questionable whether a sound and serviceable knowledge of fingering can be acquired except by careful mental considerations, such as few attempt in their student days, followed by a large amount of special practice. Certainly the mere practice of technical exercises does not necessarily impart a general knowledge of fingering such as is required by the pianist who would take part in difficult concerted music at sight. For a lucid account of the history of fingering and its present condition the reader may consult Franklin Taylor's articles on the subject (1) in Grove's Dictionary of Music and Musicians and (2) in his work on Technique and Expression. The simple rule given on page 32 covers nearly all the ground when the present System is employed.

4. *Command over various touches.* The number of different ways of striking the keys one may notice in pupils of the same master arise chiefly from difference in their muscular development, as is plain if one reflects that the keys are struck only by the fingers, in fact, any touch must be either from the finger, from the wrist, from the arm, or a combination of these, and if the player has command over a pure finger touch, a pure wrist touch and a pure arm touch, he may be said to have all he can ever attain. It is just this independence which technical exercises do not succeed in giving but which to a person whose muscles are properly developed and under control can be taught with the greatest ease, a minimum of practice being required.

5. *Locality.* Without perfect control over muscle the labour necessary to acquire certainty in skips is gigantic and often quite

unsuccessful. Given good nerve and trained muscle, a very little proper practice renders "locality" as easy to acquire as a new five finger exercise.

In conclusion, a physiological note may help the thoughtful reader here. The object of *practice* for headings 2 and 3 is to establish new nervous lines of connection. This *must* take time even with attention. In the case of 4 and 5 the object of practice is the acquisition of simple habits of movement which take very little time given good muscles and control.

It was pointed out in Chap. I that the most complicated movements of hands and fingers at the keyboard were combinations of five elementary ones. Each of these will be considered separately in detail.

*Movement No. 1. Fingers striking.*

The experience of generations of teachers, as well as scientific considerations, lead undoubtedly to the conclusion that the normal *position* of the hand in playing the piano should be "with the fingers bent, the longest ones most, the little finger least and in such a way that the tips of the fingers touch four points upon the same straight line, the thumb being held straight out, the tip reaching nearly to the tip of the index finger; and that the movement of the fingers must proceed from that joint only which connects them with the hand." (Kalkbrenner) Familiarity with these movements at the keyboard is very readily acquired, when the muscles have been perfected by a little practice of ordinary five-finger exercises, though such exercises when of the type



introduce, when attempted quickly, a difficulty of the same nature as that found in playing broken octaves, *viz*: rotation of the forearm and therefore *cannot be considered as elementary finger exercises*.

*Movement No. 2. Hand from the wrist (a) up and down (b) sideways.*

It may be demonstrated scientifically that the best tone obtainable from a pianoforte is produced by striking *from the wrist* with the fingers stiffened only just enough to keep their position. On a



given piano *pianissimo* tone does not vary with the player's touch, but for *forte* and *fortissimo* notes, there is a very great difference indeed between the tone produced by a pure wrist touch and by that of the finger, and entirely in favour of the former. The pure wrist action with fingers as little stiffened as possible, should therefore be used *whenever feasible*, not only for chords, but for single notes. Many rapid finger-passages are rendered perfectly easy of execution by playing some of the notes, generally the accented ones, from the wrist.



Chopin's Study *On the black Keys* affords an excellent example.

The movement of the hand from the wrist *sideways* (such as is natural in attempting to pass the thumb under the little finger) should be used on the contrary as seldom as possible. Control over the movement is necessary, it is true, in passing from one position of the hand at the keyboard to another as will be seen by playing

first  and then  but in almost every other case

the movement of the hand should be avoided in favor of a rapid lateral movement of the arm (Movement No. 4). For instance rapid arpeggios should be played in accordance with the Hand-skip principle fully explained in Chapter 4.

This, however, cannot be done satisfactorily and *should not be attempted* by a person who has not developed his arm muscles by the General Exercises; nor by one prevented by anaemia or nervous weakness from giving the exercises proper effect.

*Movement No. 3. Contraction and extension of the hand* (including thumb-under movement). These movements, considered of paramount importance in every school of piano playing, must tend to occupy a less and less important place as the advantage of rapid lateral arm movement easily attainable on the present system, becomes better recognized. They are inefficient compared to the method of shifting the whole hand laterally by an arm movement, for two reasons.

Firstly, any deviation from the natural unstrained position of the hand at the keyboard brings about a less favourable position for the levers (bones) to be acted upon by the forces (muscles). This is well described by Franklin Taylor in dealing with staccato octaves. He says:—

"This keeping of the fingers motionless is the chief difficulty in octave playing since the necessary extension of the hand tightens and impedes the action of the wrist, and there is at first a strong temptation to relieve the tightness by allowing the thumb and little finger to contract whenever the hand is raised. Every student feels this temptation when first beginning the practice of staccato octaves, but it must be carefully watched and overcome, as otherwise the octaves will never be free from false notes occasioned by the fingers not being precisely over the keys they are required to strike." (*Technique and Expression*, p. 8.)

Now there is no reason, because we are forced to stiffen the hand a little for octave playing, that we should do it at other times when it is unnecessary.

Secondly, the rapidity attainable by a movement of the forearm (a long lever) is much greater than that to be attained by an opening or closing of the hand where short levers only are used. The following passage should be played without ever closing the hand, but by taking a fresh hand-position for every triplet.



It should be the player's aim to finger all passages in such a way that movements of extension and contraction of the hand are used as seldom as possible.

*Movement No. 4. Of the Forearm, moving the hand along the Keyboard.*

Surely there must be players of stringed instruments who, beginning to learn the piano, have asked why the word *position*, such an integral part of the violinists' or 'cellists' vocabulary, is so little

used by piano-teachers. And would not the piano-teachers of the present day explain matters somewhat as follows:—

"Of course on the violin you have to skip very quickly from one position to another, but on the piano we don't shift on that principle; ours is a more complicated movement, it is more like that of a man climbing a tree; just as he dare not let go with his legs, until his arms are gripping fast, and *vice versa*, so on the keyboard, we contract and expand the hand, never if possible letting one note go before the finger is on the other. This avoids breaking the *legato*, which is of primary importance. Of course for distant skips one has to jump."

Such arguments are in reality misleading; this *legato* is a sort of fetish to which an importance and reverence is given quite out of all proportion to its real status. The current conception of notes played legato is of course that one must be struck at the instant the preceding one is released. That this is not of the great importance commonly attributed to it is surely proved by the following considerations.




First, there are numerous passages in the works of the best composers where such a legato is a manifest impossibility but which do not on that account offend the artistic ear.

Secondly, it is impossible to deny the truth of what Franklin Taylor says:—"Another attribute of good cantabile-playing, equally important with quality of tone, is the production of legato. It is one of the chief weaknesses of the pianoforte as a musical instrument, that owing to its mechanical construction a perfect legato is an impossibility." (For remainder of this quotation see p. 44.)

On these accounts we must surely conclude that *the impressions received by the listener and known as 'legato-playing' do not by any means depend entirely upon the simultaneous attack and release of consecutive notes, and that therefore it is wrong to lay so much stress upon it as is usually done.*

*Movement No. 5. Of the forearm backwards and forwards (as required for a chromatic scale in octaves).*

A little thought and a very little mechanical knowledge will

convince any reader that in passing from  to  and back again to  the small movement used to bring

the thumb and little finger from the natural to the sharp and back again from the sharp to the natural is a movement of the *upper arm*, no movement of any part below the elbow being able to effect the change while the wrist is kept extended. Such a movement is an extremely simple one when the muscles around the shoulder, which alone can produce the movement, are well developed. With slack, undeveloped muscles it is well nigh impossible to obtain quick and precise control over this small movement, and an illustration occurs here of the importance of little things, for a large movement is much less difficult for imperfect muscles to perform than a *small* one; thus hardly anyone is able to attain such strength and perfection of muscle and nerve as to perform a perfect trill in octaves.

It has been pointed out that as soon as all the muscles of the arm are perfected it is quite easy to use at will a pure finger touch, a pure wrist touch, or a pure arm touch in striking a note or chord and that no large amount of practice is necessary for acquiring independent command over these touches when used in combination.